

Evaluation of Aging Degradation for Neoprene Cable Jacket In Isothermal and Intermittent Heating Condition

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Abstract

Life extension of nuclear power plant is prevalent in the world nuclear industry. Consequently, life evaluation and lifetime management of cable to survive over 40 years become major concern. It is necessary to study the accelerated aging to simulate the natural aging in nuclear power plant. In this paper, evaluations of mechanical aging degradation for neoprene cable jacket were performed after accelerated aging at the isothermal and intermittent heating condition. Contrary to general expectation, intermittent heating to neoprene cable jacket showed low aging degradation, 50% of break-elongation and 60% of indenter modulus, compared with isothermal heating. With the plant outage of 1 month after every 12 or 18 months operation, it can be supposed that cable jacket of neoprene may have longer lifetime than expected in EQ test which adopts isothermal accelerated aging for the determination of cable life. Systematic approach which consider the actual environment condition of nuclear power plant is required to evaluate the expected life of each cable materials.